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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/697,877	10/26/2000	David Balaban	3330.2	3718

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EXAMINER

WILDER, CYNTHIA B

ART UNIT PAPER NUMBER

1637

DATE MAILED: 02/14/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/697,877

Applicant(s)

BALABAN, D.

Examiner

Cynthia B Wilder

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Jan 24, 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-49 is/are pending in the application.
- 4a) Of the above, claim(s) 11-49 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 5 6) ☐ Other:

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DETAILED ACTION

1. Applicant's amendment filed in Paper No. 7 is acknowledged. Claim 1 has been amended. Claims 1-10 are pending. Claims 11-49 are withdrawn from consideration as being drawn to a non-elected invention. The amendment and arguments have been thoroughly reviewed and considered but are not found persuasive for the reasons discussed below. Any rejection not reiterated in this action have been withdrawn as being obviated by the amendment of the claims.

This Action is made FINAL.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Previous Rejections

3. The prior art rejections under 35 U.S.C. 102 are maintained and discussed below. The prior art rejections under 35 U.S.C. 103 are maintained and discussed below.

Claim Rejections - 35 U.S.C. § 102(b)

4. Claims 1-3, 5 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Cronin et al. (WO 98/30883, published July 16, 1998). Regarding claim 1, Cronin et al. teach a nucleic acid probe array comprising a set of probes for interrogating a joining sequence between a first sequence element and a second sequence element (page 6, lines 18-36).

Regarding claim 2, Cronin et al. teach wherein the nucleic acid are oligonucleotide (page 11, lines 16-17).

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Regarding claim 3, Cronin et al. teach wherein the sequence elements may be exons (page 11, lines 5-15 and lines 31-37 bridging top of page 12, lines 1-4).

Regarding claims 5 and 6, Cronin et al. teach wherein the joining (tiling) sequences are at least 20 (clm 5) or at least 30 bases (clm 6) (page 20, lines 18-22). Therefore, the claimed invention of claims 1-3, 5 and 6 are anticipated by the reference of Cronin et al.

5. Applicant traverse the rejection on the following grounds: Applicant states that Cronin teaches that its invention provides array of probes immobilized on a solid support for analyzing biotransformation genes. Applicant states that in contrast, Applicant recites joining sequences which is a portion of a sequence neighboring the junction between sequence elements. Applicant states that additionally the claim has been amended to recite a nucleic acid probe array comprising a set of probes to interrogate the joining sequence. Applicant respectfully submits that Cronin does not teach every element of the amended claims and thus the rejection should be withdrawn.

6. The arguments have been thoroughly reviewed and considered but they are not found persuasive for the reasons that follows: In response to Applicant's argument that the claim recites a nucleic acid probe array to interrogated the joining sequences, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963). In this case the claim only recited "[A] nucleic acid array comprising a set of probes". The

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limitation of the claims "...to interrogate the joining sequence between a first sequence element and a second sequence element" is only an intended use of the probe array and does not constitute a structural difference or structural characteristic over the prior art. MPEP states that an intended use is of no significance or carries no patentable weight if a manipulative difference between the claim invention and the prior art cannot be ascertained (see MPEP 2111.02). While the examiner understands from the specification that the claimed invention is drawn to an alternative splicing method using tiling probe sets, the claims as broadly written do not suggest or recite the invention as disclosed in the specification. Accordingly, Applicant has not clearly point out the patentable novelty which he or she thinks the claims present in view of the state of the art disclosed by the references cited or the objections made. Further, they do not show how the amendments avoid such references or objections. In view of the foregoing, the rejections under 35 U.S.C. 102(b) are maintained.

Claim Rejections - 35 U.S.C. § 102(e)

7. Claims 1-2 are rejected under 35 U.S.C. 102(e) as being anticipated by Hacia et al. (US 6,342,355 B1, filed Jan. 5, 2000). Regarding claim 1 and 2, Hacia et al. teach a nucleic acid probe said nucleic acid is an oligonucleotide (col. 8. lines 3-21).

8. Applicant traverses the rejections on the following grounds: Applicant states that Hacia teaches an array of one probe set with probes that tile a region of interest in a reference allele.. Applicant states that in contrast, the instant invention teaches a nucleic acid probe array comprising a set of probes that interrogate the joining sequences between two sequence elements (such as two

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exons). Applicant states that the reference does not teach every element of the instant invention and request that the rejection be withdrawn.

9. The arguments have been thoroughly reviewed and considered but are not found persuasive for the reason previously discussed above at # 6. To reiterate, the claim does not recite any structural characteristics over the prior art and only recite an intended use of a nucleic acid probe array comprising a probe set. Likewise, it cannot be determined from the claims what sequences are interrogated. The claim as broadly written could encompass the interrogation of a sequence between sequences in a reference allele. The claims do not suggest in anyway that the sequence elements are exons, thus the reference of Hacia is considered valid and the rejection under 35 U.S.C. 102(e) is maintained.

Claim Rejections - 35 U.S.C. § 103

10. Claims 4-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cronin et al. in view of Hacia et al. and further in view of Lockhart et al. (6,040,138, pd March 21, 2000). Regarding claims 4-10, Cronin et al. teach a nucleic acid probe array comprising a set of probes for interrogating a joining sequence between sequence elements wherein said nucleic acid are oligonucleotides and the sequence elements may be exons. In a method similar to Cronin et al., Hacia teach a nucleic acid probe array wherein the array comprise a set of probes for interrogating sequence elements wherein the elements may be genes or variation of a gene. Hacia et al. further teach wherein the array comprise joining sequences at a 3' end and a 5' end of a sequence element. (col. 8, lines 3-12). The reference further teaches wherein a sequence element may comprise a joining sequence having at least at least 10 to 1,000,000 bases (col. 8, lines 3-21) . Hacia et al.

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further teach wherein the probes of the probe set may vary from 1 to 100,000 (col. 8, lines 20-21). The nucleic acid array of Cronin et al. and Hacia et al. differs from the instant invention in that the references do not expressly teach wherein the probes are immobilized on a substrate at a density of at least 100 probes/cm². However, the reference do suggest the use of a chip for the oligonucleotide array and teaches that the chip design provide redundant information which contributes to sensitivity and specificity (col. 13, lines 40-41). Lockhart et al teach a nucleic acid probe array comprising a set of probes for interrogating sequence elements. Lockhart teaches wherein the probes of the probe array are immobilized on a chip at a density greater than 100 probes/cm² (col. 3, lines 12-20). Lockhart teaches that such arrays are useful for large-scale analysis. Therefore, in view of the foregoing, one of ordinary skill in the art would have been motivated to provide a nucleic acid array as taught by Cronin et al. and Hacia et al. immobilized on a substrate at a density of 100 probes/cm² for the benefits of large scale analysis as taught by Lockhart et al. and for the advantage increase sensitivity and specificity as suggested by Hacia et al.

11. Applicant traverses the rejection on the following ground: Applicant states that the reference of Cronin et al. and Hacia teach the detection of sequence variations using Microarray. Applicant states that Lockhart teaches high density arrays technology, however, the amended claims are directed to the identification of sequence junctions (such junctions between exons). Applicant states that the Examiner has not shown the cited references provide suggestion or motivation for the claimed invention. Applicant request that the rejection be withdrawn.

12. The arguments have been thoroughly reviewed and considered but they are not found persuasive for the reasons previously discussed above at #6. Additionally, in response to

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Applicant's argument that the references fail to show certain features of Applicant's invention, it is noted that the features upon which Applicant relies (i.e. identification of sequence junctions, such as junctions between exons,) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). As stated earlier, the claims only recited an intended use of the probe array and does provide any manipulative differences over the prior art.

The rejections under 35 U.S.C. 103(a) are maintained.

Conclusion

13. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Cynthia Wilder whose telephone number is (703) 305-1680. The examiner can normally be reached on Monday through Thursday from 7:00 am to 5:30 pm.


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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Benzion, can be reached at (703) 308-1119. The official fax phone number for the Group is (703) 308-4242. The unofficial fax number is (703) 308-8724.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to Group's receptionist at (703) 308-0196.

Cynthia B. Wilder, Ph.D.

February 11, 2003


KENNETH R. HORLICK, PH.D.
PRIMARY EXAMINER

2/12/03